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	Examiner Name	Neveen, Abel-Jalil	
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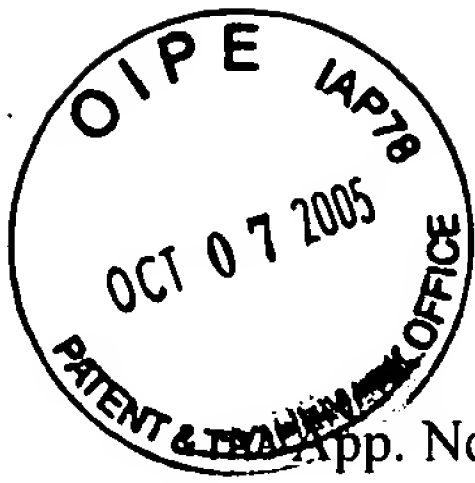
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

5 App. No. : 09/835,064
Appellants : Giuffrinda et al.
Filed : 04/13/2001
10 TC/A.U. : 2175
Examiner : Neveen, Abel-Jalil
Docket No. : HRL065
15 Customer No. : 28848
For : "A Method and Apparatus for Automatically Extracting Metadata from
20 Electronic Documents Using Spatial Rules."

BRIEF ON APPEAL

25 Hon. Commissioner for Patents
Washington, D.C. 20231

Sir:

This is an appeal from the Final Rejection, dated January 12, 2005, for the above
30 identified patent application.

REAL PARTY IN INTEREST

The present application has been assigned to HRL Laboratories, LLC of Malibu,
CA.

35 **RELATED APPEALS AND INFERENCES**

The Appellants are unaware of any other appeals or interferences related to the
subject matter of this appeal.

STATUS OF CLAIMS

Claims 1-16 are pending and are under final rejection as a result of the Office Action dated January 12, 2005. The Appellants appeal from the rejection of claims 1, 3, 9, and 11. Further, the Appellants submit that the remaining claims 2, 4-8, 10, and 12-16 are patentable at least through their dependence upon an allowable base claim. The
5 appealed claims are reproduced in Appendix A.

STATUS OF AMENDMENTS

No Amendment after Final Rejection has been entered.

10

SUMMARY OF INVENTION

The invention described and claimed in the present application relates to a method and apparatus for extracting metadata from electronic documents (Specification, page 4, lines 6-7). More specifically, the invention described and claimed in the present application relates to a method and apparatus for combining text-based matching and
15 spatial reasoning used in the extraction of metadata (Specification, page 2, lines 20-23). In one embodiment, spatial knowledge-based methodology is used for document disaggregation (Specification, page 5, lines 4-5). In one embodiment, visual and spatial knowledge is exploited when reading a document (Specification, page 5, lines 6-9). In general, within a document category, a certain visual layout can be identified for all
20 documents within that category. For instance, a scientific paper may follow the format described below, wherein the uppercase words represent metadata in the paper and bold words denote spatial relationships and other types of relationships.

The TITLE is located on the **upper** portion of the **first page** and it is printed using the
25 **largest font on the first page;**

AUTHORS are listed **immediately under** the TITLE in some order;

AFFILIATIONS **follow** the authors' list;

If **only one** AFFILIATION appears then **all** AUTHORS are associated with it;

The same **font** is used for all AUTHORS and, similarly, for all AFFILIATIONS;

The FIRST LEVEL HEADERS use a larger font than the SECOND LEVEL headers

(Specification, page 5, lines 5-19).

5 In one embodiment of the present invention, rule-based language is used to encode the visual layout of the document. Different types of documents require different knowledge bases. A knowledge base is encoded with visual and spatial layout facts. The knowledge base described in the example above deals with scientific papers appearing in conference proceedings and specialized journals (Specification, page 5, line 21 through page 6, line
10 2).

The metadata extraction system retains the document's original formatting. Formatting includes both font size and text positioning on the page. Hereinafter, data that retains the original document's formatting shall be referred to as substantially format-invariant data
15 (Specification, page 6, lines 6-9).

As shown in FIG. 1, electronic documents 100 go through an intermediate language conversion step 102, which is responsible for converting the electronic documents 100 into substantially format-invariant data files 104, and capturing the spatial and visual
20 aspects for document representation, as is claimed in part i) of Claim 1, and part a) of Claim 9. This can generally be achieved by transferring the original document to a file from the default viewer of the document. A converted document has to undergo a spatial layout fact extraction process 106 to extract relevant spatial layout information and

eliminate irrelevant information from the converted document in preparation for further processing, as is claimed in parts ii), and iii) of Claim 1, parts b) and c) of Claim 9, and dependent Claims 3 and 11. This is a task generally accomplished by any substantially format-invariant data printer driver or viewer (Specification, page 6, lines 11-19).

5 After spatial layout facts 108 have been extracted 106 from a substantially format-invariant data file 104, spatial layout facts 108 are subjected to spatial metadata reasoning 110, as is claimed in parts iv) and v) of Claim 1 and in parts d) and e) of Claim 9. A knowledge engineer 112 provides a set of spatial layout rules 114 that embodies the protocol for extracting the metadata 116 of interest from the provided document, as is
10 claimed in part vi) of Claim 1, and in part f) of Claim 9. A rule-based language reads the provided format-invariant data file and produces a set of spatial layout facts 108 for the rule-based language. Each fact contains information—text and spatial data—about the input substantially format-invariant data document. Rules provided by the knowledge engineer 112 reason with the extracted facts to identify and extract relevant metadata 116
15 from the input documents, as is claimed in part vii) of Claim 1 and in part g) of Claim 9 (Specification, page 7, lines 11-19).

ISSUE

Issue 1 – Are Claims 1-5, 7-13 and 15-16 patentable under 35 USC 102(b) over U.S. Patent No. 5,920,856 to Syeda-Mahmood (“the Syeda-Mahmood patent”)?

20

GROUPING OF CLAIMS

The ground of rejection which Appellants contest herein applies to more than one claim, such additional claims, to the extent separately identified and argued below, do not stand or fall together.

THE ARGUMENT

Issue 1 – Are Claims 1-5, 7-13 and 15-16 patentable under 35 USC 102(b) over U.S. Patent No. 5,920,856 to Syeda-Mahmood (“the Syeda-Mahmood patent”)?

5 In section 3 of the Office Action of January 12, 2005, the Examiner rejected Claims 1-5, 7-13 and 15-16 under 35 USC §102(b) as being unpatentable over U.S. patent No. 5,920,856 to Syeda-Mahmood, herein referred to as the “Syeda-Mahmood patent.” The Appellants submit that the Syeda-Mahmood patent does not describe each and every element as set forth in the rejected claims.

10

Claim 1

First, the Appellants wish to reiterate the position stated in the Appellants’ response after final dated March 32, 2005, that the Examiner has incorrectly defined the preamble of Claim 1. The preamble of Claim 1 states, “[a]n apparatus for automatically
15 extracting metadata from electronic documents.” In the first sentence of the second full paragraph on page 6 of the referenced Office Action, the Examiner stated that he “refers to figure 1 to show the preamble of the claim.” The Appellants assert that the Examiner is mistaken as to what is contained in the preamble. The Appellants submit that the preamble ends with the term before the transition word “comprising.” Thus, the
20 preamble of Claim 1 states, “[a]n apparatus for automatically extracting metadata from electronic documents.” Further, the Appellants submit that FIG. 1 of the Syeda-Mahmood patent does not disclose an apparatus for automatically extracting metadata from electronic documents.

The Appellants submit that for many of the claims rejected under 35 USC 102(b),
25 the Examiner reached an improper conclusion as to the teachings of the Syeda-Mahmood patent and incorrectly interpreted the limitations of the rejected claims. In order to establish a *prima facie* case of anticipation, the Examiner must set forth an argument that provides (1) a single reference (2) that teaches or enables (3) each of the claimed elements (as arranged in the claim) (4) either expressly or inherently and (5) as
30 interpreted by one of ordinary skill in the art. All of these factors must be present, or a

case of anticipation is not met. Thus, “[a]nticipation requires that every element of the claims appear in a single reference ...” *Continental Can Co. v. Monsanto Co.* 948 F.2d 1264 (Fed. Cir. 1991). The Appellants assert that the Syeda-Mahmood patent does not describe each and every element as set forth in the rejected claims.

5 Regarding Claim 1, the Examiner asserted, in section 3 of the Final Office Action, that figure 1 of the Syeda-Mahmood patent discloses an apparatus, and a method for automatically extracting metadata from electronic documents comprising a first processing element, a second processing element, a reasoning element, and a database. The Examiner stated that col. 7, lines 1-39, and col. 12, lines 47-55 of the Syeda-
10 Mahmood patent discloses a first processing element configured to convert electronic documents into files. The Examiner further stated that col. 7, lines 1-39 of the Syeda-Mahmood patent discloses that said first processing element is configured to provide the files to a second processing element. The Examiner interpreted the translator module of the Syeda-Mahmood patent that resides in the meta-database to be equivalent to the first
15 processing element, since the translator module converts electronic documents from different Web sites into records stored at a central location. The Examiner also stated that col. 7, lines 1-45 of the Syeda-Mahmood patent teaches that said second processing element is configured to receive files and extract predetermined information. In addition, the Examiner stated that col. 7, lines 1-45 of the Syeda-Mahmood patent teaches that said
20 second processing element is further configured to provide said extracted predetermined information to said reasoning element. The Examiner asserted that the search agent of the Syeda-Mahmood patent reads on the second processing element of the present application, and metadata of the Syeda-Mahmood patent reads on predetermined information of the present application. Further, the Examiner stated that col. 7, lines 15-
25 38 of the Syeda-Mahmood patent discloses that said database is configured to also provide input to said reasoning element. The Examiner also stated that col. 6, lines 1-22 and col. 7, lines 14-38 of the Syeda-Mahmood patent discloses that said reasoning element is configured to use a set of rules to extract metadata from the files. Finally, the Examiner stated that col. 5, lines 24-38 of the Syeda-Mahmood patent discloses that said
30 reasoning element provides an output of metadata, where the Examiner asserted that the

reasoning element of the present application reads on the refining module of the Syeda-Mahmood patent.

The Appellants disagree with the characterization of the Syeda-Mahmood patent by the Examiner. First, the Appellants point out that the system disclosed in the Syeda-Mahmood patent is very different than the system claimed in the present application. Looking to the abstract, the Syeda-Mahmood patent discloses a network server which interfaces a client with selected database sites from a plurality of database sites. The network server comprises a meta-database, a search agent, and a refining module. The search agent indexes the meta-database with a user query obtained from the client, and then distributes queries, developed pursuant to such indexing, to the selected ones of the plurality of database sites. A refining module is used to update the meta-database with the database relevancy information. The Appellants submit that this is very different from an apparatus for automatically extracting metadata from electronic documents, wherein said second processing element is configured to provide extracted predetermined information to a reasoning element, and the reasoning element is configured to use a set of rules to extract metadata from the files.

The Appellants look to the elements as arranged in Claim 1. Claim 1 claims, in relevant part, a first processing element configured to convert electronic documents into files, a second processing element configured to receive the files and extract predetermined information, and a reasoning element configured to use a set of rules to extract metadata from the files, where the reasoning element provides an output of metadata. In the Examiner's rejection of Claim 1 on pages 2 and 3 of the referenced Office Action, the Appellants understand that the Examiner has analogized the first processing element to the translator module of the Syeda-Mahmood patent, the second processing element to the search agent of the Syeda-Mahmood patent, the predefined information to the metadata of the Syeda-Mahmood patent, and the reasoning element to the refining module of the Syeda-Mahmood patent. However, in the same referenced Office Action on page 6, the Examiner appears to change his mind and asserts that the second processor is not anticipated by the search agent of the Syeda-Mahmood patent, but instead by the translator module of the Syeda-Mahmood patent. However, previously, the Examiner had asserted that the first processing element was the translator

module. Additionally, on page 6, the Examiner stated that a search agent of the Syeda-Mahmood patent is capable of being a reasoning element; however, this contradicts the Examiner's earlier assertion that the refining module of the Syeda-Mahmood patent anticipates the reasoning element. Given the Examiner's conflicting positions, the
5 Appellants are confused as to which elements of the Syeda-Mahmood patent the Examiner asserts anticipate which elements of the present claims.

If the Examiner is correct and the various components of the Syeda-Mahmood patent anticipate the elements in Claim 1, then, following the Examiner's logic, the Syeda-Mahmood patent must teach that the translator module converts electronic
10 documents into files, the search agent receives the converted files and uses query patterns to extract predetermined information or the search agent receives the converted files and extracts metadata, and the refining module or the search agent uses a set of rules to extract metadata from the files, where the refining module provides an output of metadata. The Appellants submit that the Syeda-Mahmood patent does not operate in the
15 manner described above. Instead, the Appellants submit that the Syeda-Mahmood patent teaches a method of querying databases and web-sites for information, storing and updating that information, and then retrieving that information at a later time. First, the Appellants note that the Examiner cannot claim that the search agent of the Syeda-Mahmood patent is both the second processing element and the reasoning element.
20 If the Examiner states that the search agent is the second processing element, and the search agent extracts metadata (i.e., predetermined information), then how does the Examiner anticipate the reasoning element is configured to use a set of rules to extract metadata from files? The Appellants submit that the Syeda-Mahmood patent does not disclose all of the elements of Claim 1.

25 Col. 7, lines 15-17 of the Syeda-Mahmood patent states that the user query may have to be transformed by a translator module into forms the respective databases expect. Thus, the Syeda-Mahmood patent teaches that the translator module changes a query from one query language to another query language, much like a Spanish translator will translate Spanish into English. The Appellants submit that this is not the same thing as
30 "converting electronic documents into files." Thus, the Appellants submit that the Syeda-

Mahmood patent does not teach, disclose or suggest a first processing element configured to convert electronic documents into files, as is claimed in Claim 1.

Col. 6, lines 30-35 of the Syeda-Mahmood patent state that the role of the search agent 5 is to not only distribute queries to relevant database sites 8 after indexing into the meta-database 4, but also to assemble and return the database responses back to the user 6. The Appellants submit that this is not the same thing as “said second processing element is configured to receive files and extract predetermined information.” The Appellants submit that the Syeda-Mahmood patent teaches that the search agent distributes queries. Thus, the search agent requests predetermined information, but it does not receive files and extract predetermined information as is claimed in Claim 1.

Col. 5, lines 33-36 of the Syeda-Mahmood patent state that the refining module 7 (also referred to as training or learning module) associates patterns of responses from the databases to queries to learn the relevance of database sites 8 for similar further queries. Further, col. 6, lines 33-36 state that the search agent 5 relays the query data patterns and the database responses to the refining module 7 for site and scope relevancy updation. The Appellants do not know where in the Syeda-Mahmood patent the Examiner has found support for the refining module 7 extracting metadata from the files, and outputting the metadata. For example, col. 7, lines 36-39 state that the output of the refining module is a probability value indicating the likelihood of a database returning useful results for a given query. Thus, the Appellants submit that the Syeda-Mahmood patent does not teach, disclose or suggest “said reasoning element is configured to use a set of rules to extract metadata from the files; and said reasoning element provides an output of metadata,” as is claimed in Claim 1.

Since the Examiner has been unable to adequately show that the Syeda-Mahmood patent discloses several of the elements of Claim 1, the Appellants submit that the Examiner has not established a *prima facie* case for the rejection of Claim 1 under 35 USC 102. Further, as discussed above, the Appellants submit that the Syeda-Mahmood patent does not teach, disclose, or suggest these limitations. Since the Syeda-Mahmood patent does not teach each and every element as set forth in Claim 1, Claim 1 is patentable for the reasons set forth above.

Claim 2

Claim 2, dependent on Claim 1, is patentable by virtue of its dependency.

Claim 3

5 Claim 3, dependent on Claim 1, is patentable by virtue of its dependency.

The Appellants further submit that Claim 3 is also patentable on its own merits. In his rejection of Claim 3, the Examiner stated that the Syeda-Mahmood patent discloses an apparatus for automatically extracting metadata from electronic documents, wherein said predetermined information is substantially spatial layout facts, pointing to col. 9,
10 lines 51-67 and col. 10, lines 15-36. The Appellants respectfully disagree with the conclusion drawn by the Examiner.

First, as noted above, the Examiner has indicated that the predetermined information is analogous to the query template or metadata in the Syeda-Mahmood patent. Col. 9, lines 51-67 deal with image feature extraction, which includes method for
15 extracting information about edges, curves, color, texture, etc. Col. 10, lines 15-36 deal with image organization, specifically, clustering of image data and spatial information. However, it is important to refer back to Claim 1 to understand Claim 3. Claim 1 claims, in part, “said second processing element is configured to receive said files and extract predetermined information, said second processing element is further configured to
20 provide said extracted predetermined information to said reasoning element.” Claim 3 claims that said predetermined information is substantially spatial layout facts. Thus, in order for the Syeda-Mahmood patent to anticipate Claim 3, it must teach that said second processing element is configured to receive said files and extract substantially spatial layout facts, and that said processing element is further configured to provide said
25 extracted substantially spatial layout facts to said reasoning element. Col. 9, lines 51-67 discloses extracting information about images such as edges, curves, color and texture. The Appellants submit that this does not anticipate that said second processing element is configured to receive said files and extract substantially spatial layout facts, and that said processing element is further configured to provide said extracted substantially spatial
30 layout facts to said reasoning element of Claim 3. Further, col. 10, lines 16-36 teaches clustering image and spatial information in order to prevent false matches during

indexing. The Appellants submit that col. 10, lines 16-36 do not teach, disclose or suggest that said second processing element is configured to receive said files and extract substantially spatial layout facts, and that said processing element is further configured to provide said extracted substantially spatial layout facts to said reasoning element of
5 Claim 3. Thus the Appellants submit that Claim 3 is patentable over the cited prior art.

Claim 4

Claim 4, dependent on Claim 1, is patentable by virtue of its dependency.

10 Claim 5

Claim 5, dependent on Claim 1, is patentable by virtue of its dependency.

Claim 6

Claim 6, dependent on Claim 1, is patentable by virtue of its dependency.

15

Claim 7

Claim 7, dependent on Claim 1, is patentable by virtue of its dependency.

Claim 8

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Claim 8, dependent on Claim 1, is patentable by virtue of its dependency.

Claim 9

25

Claim 9 is patentable over the Syeda-Mahmood patent for the same reasons presented above for Claim 1. That is, the Appellants submit that the Syeda-Mahmood patent does not teach all of the elements of Claim 9, such as “using a first processing element to convert electronic documents to files,” “using said second processing element to receive files and extract predetermined information,” and “using a set of rules in said reasoning element to extract metadata from the files.”

30

The Appellants submit that the Examiner has not established a *prima facie* case of anticipation for Claim 9 based on the teachings of the Syeda-Mahmood patent. Therefore, Claim 9 is patentable over the Syeda-Mahmood patent.

Claim 10

Claim 10, dependent on Claim 9, is patentable by virtue of its dependency.

5 Claim 11

Claim 11, dependent on Claim 9, is patentable by virtue of its dependency.

Claim 11 is also patentable over the Syeda-Mahmood patent for the same reasons presented above for Claim 3. That is, the Appellants submit that the Syeda-Mahmood patent does not teach, disclose, or suggest “wherein said predetermined information is
10 substantially spatial layout facts” as is claimed in Claim 11.

Claim 12

Claim 12, dependent on Claim 9, is patentable by virtue of its dependency.

15 Claim 13

Claim 13, dependent on Claim 9, is patentable by virtue of its dependency.

Claim 14

Claim 14, dependent on Claim 9, is patentable by virtue of its dependency.

20

Claim 15

Claim 15, dependent on Claim 9, is patentable by virtue of its dependency.

Claim 16

25 Claim 16, dependent on Claim 9, is patentable by virtue of its dependency.

CONCLUSION

For the extensive reasons advanced above, the Appellants respectfully contend that each claim is patentable. Therefore, reversal of all rejections and objections is courteously solicited.

To the extent necessary, a petition for an extension of time under 37 CFR 1.136 is hereby made. Please charge any shortage of fees due in connection with the filing of this paper, including extension of time fees, to deposit account no. 50-2691 and please credit any excess fees to such deposit account.

Respectfully submitted,

10/5/05

Date

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Encl: Appendix A – pending Claims

CLAIMS

What is claimed is:

1. An apparatus for automatically extracting metadata from electronic documents comprising a first processing element, a second processing element, a reasoning element, and a database, wherein,

- i) said first processing element is further configured to convert electronic documents into files;
- ii) said first processing element is configured to provide the files to a second processing element;
- iii) said second processing element is configured to receive said files and extract predetermined information;
- iv) said second processing element is further configured to provide said extracted predetermined information to said reasoning element;
- v) said database is configured to also provide input to said reasoning element;
- vi) said reasoning element is configured to use a set of rules to extract metadata from the files; and
- vii) said reasoning element provides an output of metadata.

2. An apparatus for automatically extracting metadata from electronic documents as set forth in claim 1, wherein said files are substantially format invariant data files such as Postscript files

3. An apparatus for automatically extracting metadata from electronic documents as set forth in claim 1, wherein said predetermined information is substantially spatial layout facts.

4. An apparatus for automatically extracting metadata from electronic documents as set forth in claim 1, wherein the second processing element and said database simultaneously input to the reasoning element.

5. An apparatus for automatically extracting metadata from electronic documents as set forth in claim 1, wherein said set of rules can be updated.

6. An apparatus for automatically extracting metadata from electronic documents as set forth in claim 1, wherein said metadata is substantially comprised of title, author, affiliation, author affiliation, and table of contents.

7. An apparatus for automatically extracting metadata from electronic documents as set forth in claim 1, wherein said metadata is provided to a user interface.

8. An apparatus for automatically extracting metadata from electronic documents as set forth in claim 1, wherein said metadata is provided to a storage medium.

9. A method for automatically extracting metadata from electronic documents providing a first processing element, a second processing element, a reasoning element, and a database and comprising the steps of:

- a) using said first processing element to convert electronic documents to files;
- b) further using said first processing element to provide the files to said second processing element;
- c) using said second processing element to receive said files and extract predetermined information;
- d) further using said second processing element to provide extracted predetermined information to said reasoning element;
- e) using said database to provide input to said reasoning element;
- f) using a set of rules in said reasoning element to extract metadata from the files;
- g) providing an out put of metadata from said reasoning element.

10. The method for automatically extracting metadata from electronic documents as set forth in claim 9, wherein said files are substantially format invariant data files such as Postscript files.

11. A method for automatically extracting metadata from electronic documents as set forth in claim 9, wherein said predetermined information is substantially spatial layout facts.

12. A method for automatically extracting metadata from electronic documents as set forth in claim 9, wherein the second processing element and the database simultaneously input to the reasoning element.

13. A method for automatically extracting metadata from electronic documents as set forth in claim 9, wherein said set of rules can be updated.

14. A method for automatically extracting metadata from electronic documents as set forth in claim 9, wherein said metadata is substantially comprised of title, author, affiliation, author affiliation, and table of contents.

15. A method for automatically extracting metadata from electronic documents as set forth in claim 9, wherein said metadata is provided to a user interface.

16. A method for automatically extracting metadata from electronic documents as set forth in claim 9, wherein said metadata is provided to a storage medium.

5 timely filed. The petition fee due in connection therewith may be charged to the attached credit card form or deposit account no. 50-2691.

Respectfully submitted,

10

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15

Attachments

- Appeal Brief
- Appendix A to Appeal Brief



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 09/835,064
Applicant : Giuffrinda et al.

Filed : 04/13/2001

TC/A.U. : 2175

15 Examiner : Neveen, Abel-Jalil

Docket No. : HRL065

20 Customer No. : 28848

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

25

AMENDMENT

Sir:

30 In response to the Notification of Non-Compliant Appeal Brief dated September 23, 2005, having a shortened-statutory response period extending through and including October 23, 2005, please accept the following revised Appeal Brief.

The Appellants respectfully submit that the revised Appeal Brief meets all of the requirements set forth in 37 CFR 41.37.

35 In the event the Examiner wishes to discuss any aspect of this response, or believes that a conversation with either Appellants or Appellants' representative would be beneficial the Examiner is encouraged to contact the undersigned at the telephone number indicated below.

40 The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to the attached credit card form or deposit account no. 50-2691. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response